



A-581

- 1 -

SEQUENCE LISTING

<110> Citron, Martin  
Vassar, Robert J.  
Bennett, Brian D.

<120> Beta Secretase Genes and Polypeptides

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<140> 09/277,229

<141> 1999-03-26

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<170> PatentIn Ver. 2.1

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<212> DNA

<213> Homo sapiens

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| ggaaccatc  | tcggcatccg | gctgcccctt | cgcagcggcc | tggcagggcc  | acccttgggc | 120  |
| ctgaggctgc | cccgggagac | cgacaggaa  | tcggaggagc | ctggccggag  | aggcagcttt | 180  |
| gtggagatgg | tggacaacct | gaggggaaag | tccggccagg | gctactatgt  | ggagatgacc | 240  |
| gtaggcagcc | ccccacagac | gctcaacatc | ctggtggaca | cgggcagtag  | taactttgca | 300  |
| gtgggggctg | ccccacaccc | tttcttgcac | cgctactacc | agaggcagct  | gtccagcaca | 360  |
| tatcgagacc | tccgaaagg  | tgtgtatgtg | ccctacaccc | agggcaagt   | ggagggggaa | 420  |
| ctgggcaccg | acctggtgag | catccctcat | ggccccaacg | tactgtgcg   | tgccaacatt | 480  |
| gctgccatca | ctgaatcgga | caagttcttc | atcaatggtt | ccaactggga  | gggcatccta | 540  |
| gggctggcct | atgctgagat | tgccaggccc | gacgactctt | tggagccctt  | ctttgactcc | 600  |
| ctggtgaagc | agaccacat  | tcccaacatc | ttttccctgc | agctctgtgg  | cgctggcttc | 660  |
| cccctcaacc | agaccgaggc | actggcctcg | gtgggaggga | gcatgatcat  | tggtggtatc | 720  |
| gaccactcgc | tatacacggg | cagtctctgg | tacacacca  | tccggcggga  | gtggtattat | 780  |
| gaagtgatca | ttgtacgtgt | ggaaatcaat | ggtcaagatc | tcaagatgga  | ctgcaaggag | 840  |
| tacaactacg | acaagagcat | tgtggacagt | gggaccacca | accttcgctt  | gccccagaaa | 900  |
| gtatttgaag | ctgccgtcaa | gtccatcaag | gcagcctcct | cgacggagaa  | gttcccggat | 960  |
| ggcttttggc | taggggagca | gctggtgtgc | tggcaagcag | gcacgacccc  | ttggaacatt | 1020 |
| ttcccagtc  | tttcaactta | cctcatgggt | gaagtcacca | atcagtcctt  | ccgcatcacc | 1080 |
| atccttcttc | agcaatacct | acggccgggt | gaggacgtgg | ccacgtccca  | agacgactgt | 1140 |
| tacaagttcg | ctgtctcaca | gtcatccacg | ggcactgtta | tgggagccgt  | catcatggaa | 1200 |
| ggtttctatg | tcgtcttcga | tcgagcccga | aagcgaattg | gctttgctgt  | cagcgcttgc | 1260 |
| catgtgcacg | atgagttcag | gacggcggca | gtggaaggtc | cgtttggtac  | ggcagacatg | 1320 |
| gaagactgtg | gctacaacat | tcccagaca  | gatgagtc   | caacttatgac | catagcctat | 1380 |
| gtcatggcgg | ccatctgcgc | cctcttcatg | ttgccactct | gcctcatggt  | atgtcagtgg | 1440 |
| cgctgcctgc | gttgctgcg  | ccaccagcac | gatgactttg | ctgatgacat  | ctccctgctc | 1500 |
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&lt;211&gt; 1503

&lt;212&gt; DNA

&lt;213&gt; Rattus rattus

&lt;400&gt; 3

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| ggaaccatc  | tcggtatccg | actgcccctt | cgcagcggcc | tggcagggcc | acccttgggc | 120  |
| ctgaggctgc | cccgggagac | ggacaggaa  | cctgaggagc | ctggccggag | aggcagcttt | 180  |
| gtggagatgg | tggacaacct | gaggggaaag | tccggccagg | gctactatgt | ggagatgacc | 240  |
| gtgggcagcc | ccccacagac | gctcaacatc | ctggtggaca | cgggcagtag | taattttgca | 300  |
| gtgggggctg | ccccacaccc | tttcttgcac | cgatactacc | aaaggcagct | gtccagtaca | 360  |
| taccgagacc | tccgaaagtc | tgtgtatgtg | ccctacaccc | agggcaagt  | ggagggggaa | 420  |
| ctgggcactg | acctggtgag | catccctcat | ggccccaacg | tactgtgcg  | tgccaacatt | 480  |
| gctgccatca | ctgaatcgga | caagttcttc | atcaatggtt | ccaactggga | gggcatccta | 540  |
| gggctggcct | atgctgagat | tgccaggcct | gacgactcct | tggagccctt | ttttgactcc | 600  |
| ctggtgaagc | agaccacat  | tccgaacatc | ttttccctgc | agctctgtgg | cgctggcttc | 660  |
| cccctcaacc | agactgaggc | actggcctcg | gtgggaggga | gcatgatcat | tggtggtatc | 720  |
| gaccattccc | tatacactgg | cagtctctgg | tacacacca  | tccggcggga | gtggtattat | 780  |
| gaagtgatca | ttgtacgtgt | agaaatcaat | ggtcaagatc | tgaaaatgga | ctgcaaggag | 840  |
| tacaactatg | acaagagcat | cgtggacagt | ggcaccacca | accttcgctt | gccccagaaa | 900  |
| gtatttgaag | ctgcagtcaa | gtccatcaag | gcagcctcct | cgacggagaa | gttcccggat | 960  |
| ggcttttggc | taggggagca | gctggtgtgc | tggcaagcag | gcacgacccc | ttggaacatt | 1020 |
| ttcccagtc  | tttcaactta | cctcatgggt | gaagtcacca | atcagtcctt | ccgcatcacc | 1080 |
| atccttcttc | agcaatacct | acggccagtg | gaagatgtgg | ccacgtccca | agacgactgt | 1140 |
| tacaagttcg | ccgtctcaca | gtcatccaca | ggcaccgtta | tgggagcggg | catcatggaa | 1200 |
| ggcttctatg | tggtctttga | tcgagcccga | aagcgaattg | gctttgctgt | cagcgcttgc | 1260 |

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<212> PRT

<213> Homo sapiens

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Gly Leu Gly Gly Ala Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp  
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Glu Glu Pro Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val  
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Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr  
 65 70 75 80

Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser  
 85 90 95

Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr  
 100 105 110

Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Gly Val  
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Tyr Val Pro Tyr Thr Gln Gly Lys Trp Glu Gly Glu Leu Gly Thr Asp  
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Leu Val Ser Ile Pro His Gly Pro Asn Val Thr Val Arg Ala Asn Ile  
 145 150 155 160

Ala Ala Ile Thr Glu Ser Asp Lys Phe Phe Ile Asn Gly Ser Asn Trp  
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Glu Gly Ile Leu Gly Leu Ala Tyr Ala Glu Ile Ala Arg Pro Asp Asp  
 180 185 190

Ser Leu Glu Pro Phe Phe Asp Ser Leu Val Lys Gln Thr His Val Pro  
 195 200 205

Asn Leu Phe Ser Leu Gln Leu Cys Gly Ala Gly Phe Pro Leu Asn Gln  
 210 215 220

Ser Glu Val Leu Ala Ser Val Gly Gly Ser Met Ile Ile Gly Gly Ile  
 225 230 235 240  
 Asp His Ser Leu Tyr Thr Gly Ser Leu Trp Tyr Thr Pro Ile Arg Arg  
 245 250 255  
 Glu Trp Tyr Tyr Glu Val Ile Ile Val Arg Val Glu Ile Asn Gly Gln  
 260 265 270  
 Asp Leu Lys Met Asp Cys Lys Glu Tyr Asn Tyr Asp Lys Ser Ile Val  
 275 280 285  
 Asp Ser Gly Thr Thr Asn Leu Arg Leu Pro Lys Lys Val Phe Glu Ala  
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 Ala Val Lys Ser Ile Lys Ala Ala Ser Ser Thr Glu Lys Phe Pro Asp  
 305 310 315 320  
 Gly Phe Trp Leu Gly Glu Gln Leu Val Cys Trp Gln Ala Gly Thr Thr  
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 Pro Trp Asn Ile Phe Pro Val Ile Ser Leu Tyr Leu Met Gly Glu Val  
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 Thr Asn Gln Ser Phe Arg Ile Thr Ile Leu Pro Gln Gln Tyr Leu Arg  
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 Pro Val Glu Asp Val Ala Thr Ser Gln Asp Asp Cys Tyr Lys Phe Ala  
 370 375 380  
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 385 390 395 400  
 Gly Phe Tyr Val Val Phe Asp Arg Ala Arg Lys Arg Ile Gly Phe Ala  
 405 410 415  
 Val Ser Ala Cys His Val His Asp Glu Phe Arg Thr Ala Ala Val Glu  
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 Gly Pro Phe Val Thr Leu Asp Met Glu Asp Cys Gly Tyr Asn Ile Pro  
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 Gln Thr Asp Glu Ser Thr Leu Met Thr Ile Ala Tyr Val Met Ala Ala  
 450 455 460  
 Ile Cys Ala Leu Phe Met Leu Pro Leu Cys Leu Met Val Cys Gln Trp  
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 Ile Ser Leu Leu Lys  
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| Leu        | Pro        | Ala        | Gln<br>20  | Gly        | Thr        | His        | Leu        | Gly<br>25  | Ile        | Arg        | Leu        | Pro        | Leu<br>30  | Arg        | Ser        |
| Gly        | Leu        | Ala<br>35  | Gly        | Pro        | Pro        | Leu        | Gly<br>40  | Leu        | Arg        | Leu        | Pro        | Arg<br>45  | Glu        | Thr        | Asp        |
| Glu        | Glu<br>50  | Ser        | Glu        | Glu        | Pro        | Gly<br>55  | Arg        | Arg        | Gly        | Ser        | Phe<br>60  | Val        | Glu        | Met        | Val        |
| Asp<br>65  | Asn        | Leu        | Arg        | Gly        | Lys<br>70  | Ser        | Gly        | Gln        | Gly        | Tyr<br>75  | Tyr        | Val        | Glu        | Met        | Thr<br>80  |
| Val        | Gly        | Ser        | Pro        | Pro<br>85  | Gln        | Thr        | Leu        | Asn        | Ile<br>90  | Leu        | Val        | Asp        | Thr        | Gly<br>95  | Ser        |
| Ser        | Asn        | Phe        | Ala<br>100 | Val        | Gly        | Ala        | Ala        | Pro<br>105 | His        | Pro        | Phe        | Leu        | His<br>110 | Arg        | Tyr        |
| Tyr        | Gln        | Arg<br>115 | Gln        | Leu        | Ser        | Ser        | Thr<br>120 | Tyr        | Arg        | Asp        | Leu        | Arg<br>125 | Lys        | Gly        | Val        |
| Tyr<br>130 | Val        | Pro        | Tyr        | Thr        | Gln        | Gly<br>135 | Lys        | Trp        | Glu        | Gly        | Glu<br>140 | Leu        | Gly        | Thr        | Asp        |
| Leu<br>145 | Val        | Ser        | Ile        | Pro        | His<br>150 | Gly        | Pro        | Asn        | Val        | Thr<br>155 | Val        | Arg        | Ala        | Asn        | Ile<br>160 |
| Ala        | Ala        | Ile        | Thr        | Glu<br>165 | Ser        | Asp        | Lys        | Phe        | Phe<br>170 | Ile        | Asn        | Gly        | Ser        | Asn<br>175 | Trp        |
| Glu        | Gly        | Ile<br>180 | Leu        | Gly        | Leu        | Ala        | Tyr        | Ala<br>185 | Glu        | Ile        | Ala        | Arg        | Pro<br>190 | Asp        | Asp        |
| Ser        | Leu<br>195 | Glu        | Pro        | Phe        | Phe        | Asp        | Ser<br>200 | Leu        | Val        | Lys        | Gln        | Thr<br>205 | His        | Ile        | Pro        |
| Asn<br>210 | Ile        | Phe        | Ser        | Leu        | Gln        | Leu<br>215 | Cys        | Gly        | Ala        | Gly        | Phe<br>220 | Pro        | Leu        | Asn        | Gln        |
| Thr<br>225 | Glu        | Ala        | Leu        | Ala        | Ser<br>230 | Val        | Gly        | Gly        | Ser        | Met<br>235 | Ile        | Ile        | Gly        | Gly        | Ile<br>240 |
| Asp        | His        | Ser        | Leu        | Tyr<br>245 | Thr        | Gly        | Ser        | Leu        | Trp<br>250 | Tyr        | Thr        | Pro        | Ile        | Arg<br>255 | Arg        |
| Glu        | Trp        | Tyr        | Tyr<br>260 | Glu        | Val        | Ile        | Ile        | Val<br>265 | Arg        | Val        | Glu        | Ile        | Asn<br>270 | Gly        | Gln        |

Asp Leu Lys Met Asp Cys Lys Glu Tyr Asn Tyr Asp Lys Ser Ile Val  
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 Asp Ser Gly Thr Thr Asn Leu Arg Leu Pro Lys Lys Val Phe Glu Ala  
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 Gly Phe Trp Leu Gly Glu Gln Leu Val Cys Trp Gln Ala Gly Thr Thr  
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 370 375 380  
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 385 390 395 400  
 Gly Phe Tyr Val Val Phe Asp Arg Ala Arg Lys Arg Ile Gly Phe Ala  
 405 410 415  
 Val Ser Ala Cys His Val His Asp Glu Phe Arg Thr Ala Ala Val Glu  
 420 425 430  
 Gly Pro Phe Val Thr Ala Asp Met Glu Asp Cys Gly Tyr Asn Ile Pro  
 435 440 445  
 Gln Thr Asp Glu Ser Thr Leu Met Thr Ile Ala Tyr Val Met Ala Ala  
 450 455 460  
 Ile Cys Ala Leu Phe Met Leu Pro Leu Cys Leu Met Val Cys Gln Trp  
 465 470 475 480  
 Arg Cys Leu Arg Cys Leu Arg His Gln His Asp Asp Phe Ala Asp Asp  
 485 490 495  
 Ile Ser Leu Leu Lys  
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&lt;210&gt; 6

&lt;211&gt; 501

&lt;212&gt; PRT

&lt;213&gt; Rattus rattus

&lt;400&gt; 6

Met Ala Pro Ala Leu Arg Trp Leu Leu Leu Trp Val Gly Ser Gly Met  
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 Gly Leu Ala Gly Pro Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp  
                   35                                  40                                  45  
 Glu Glu Pro Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val  
                   50                                  55                                  60  
 Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr  
                   65                                  70                                  75                                  80  
 Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser  
                                   85                                  90                                  95  
 Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr  
                                   100                                  105                                  110  
 Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Ser Val  
                   115                                  120                                  125  
 Tyr Val Pro Tyr Thr Gln Gly Lys Trp Glu Gly Glu Leu Gly Thr Asp  
                   130                                  135                                  140  
 Leu Val Ser Ile Pro His Gly Pro Asn Val Thr Val Arg Ala Asn Ile  
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 Ala Ala Ile Thr Glu Ser Asp Lys Phe Phe Ile Asn Gly Ser Asn Trp  
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 Glu Gly Ile Leu Gly Leu Ala Tyr Ala Glu Ile Ala Arg Pro Asp Asp  
                   180                                  185                                  190  
 Ser Leu Glu Pro Phe Phe Asp Ser Leu Val Lys Gln Thr His Ile Pro  
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 Asn Ile Phe Ser Leu Gln Leu Cys Gly Ala Gly Phe Pro Leu Asn Gln  
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 Thr Glu Ala Leu Ala Ser Val Gly Gly Ser Met Ile Ile Gly Gly Ile  
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 Asp His Ser Leu Tyr Thr Gly Ser Leu Trp Tyr Thr Pro Ile Arg Arg  
                                   245                                  250                                  255  
 Glu Trp Tyr Tyr Glu Val Ile Ile Val Arg Val Glu Ile Asn Gly Gln  
                   260                                  265                                  270  
 Asp Leu Lys Met Asp Cys Lys Glu Tyr Asn Tyr Asp Lys Ser Ile Val  
                   275                                  280                                  285  
 Asp Ser Gly Thr Thr Asn Leu Arg Leu Pro Lys Lys Val Phe Glu Ala  
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 Ala Val Lys Ser Ile Lys Ala Ala Ser Ser Thr Glu Lys Phe Pro Asp  
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Gly Phe Trp Leu Gly Glu Gln Leu Val Cys Trp Gln Ala Gly Thr Thr  
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 Thr Asn Gln Ser Phe Arg Ile Thr Ile Leu Pro Gln Gln Tyr Leu Arg  
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 Pro Val Glu Asp Val Ala Thr Ser Gln Asp Asp Cys Tyr Lys Phe Ala  
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 Val Ser Gln Ser Ser Thr Gly Thr Val Met Gly Ala Val Ile Met Glu  
 385                          390                          395                          400  
 Gly Phe Tyr Val Val Phe Asp Arg Ala Arg Lys Arg Ile Gly Phe Ala  
                           405                          410                          415  
 Val Ser Ala Cys His Val His Asp Glu Phe Arg Thr Ala Ala Val Glu  
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 Gly Pro Phe Val Thr Ala Asp Met Glu Asp Cys Gly Tyr Asn Ile Pro  
                           435                          440                          445  
 Gln Thr Asp Glu Ser Thr Leu Met Thr Ile Ala Tyr Val Met Ala Ala  
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 Ile Cys Ala Leu Phe Met Leu Pro Leu Cys Leu Met Val Cys Gln Trp  
 465                          470                          475                          480  
 Arg Cys Leu Arg Cys Leu Arg His Gln His Asp Asp Phe Ala Asp Asp  
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&lt;210&gt; 7

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;400&gt; 7

Cys Leu Arg Gln Gln His Asp Asp Phe Ala Asp Asp Ile Ser Leu Leu  
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Lys

&lt;210&gt; 8



<211> 24  
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<213> Artificial Sequence

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Oligonucleotide

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24

<210> 9  
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<220>  
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Oligonucleotide

<400> 9  
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37

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Oligonucleotide

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23

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24

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Oligonucleotide

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gtgccgatgt agcgggctcc gga

23

<210> 16

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25

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